

2013-2014 Winter season: role of viruses in adult hospitalizations for acute respiratory infections, further evaluation and assessment with a focus on influenza and RSV

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Objectives

Identification of viral pathogens in adult severe acute respiratory infections (SARI) during winter months is still mainly limited to influenza. Yet, other respiratory viruses may lead to significant morbidity and mortality. The aim of this descriptive observational cohort study was to assess the prevalence of respiratory viral infections in adult hospitalizations for acute respiratory conditions, and to confirm the impact of Influenza and Respiratory Syncytial Virus (RSV) compared with local 2012-2013 data.

Methods

All adult patients presenting to the Emergency Department (ED) for an acute respiratory syndrome (fever > 38°C, cough and/or dyspnea) and who required hospitalization (≥ 24h) after medical evaluation were included. The study timeframe was defined following the circulation criteria of Respiratory Syncytial Virus (RSV) in the paediatric population (November 15th, 2013), up to the end of winter period (March 31st, 2014). Naso-pharyngeal swabs were sampled at ED after oral informed consent. Multiplex Real-Time PCR (RT-PCR) was performed for diagnosis of viral infections (Influenza/RSV and other respiratory viruses). Medical management of patients, biological samples and laboratory analysis were carried out according to standard practice, with additional infection control measures implemented for patients with a confirmed diagnosis of viral infection.

A retrospective chart review was performed, including epidemiologic, medical and outcome data. Epidemiologic and laboratory results were compared with 2012-2013 data. The study protocol was approved by the Ethics Committee of University hospital CHU Dinant-Godinne.

Results

In total, 176 adult patients matching with the SARI case definition were enrolled. Out of 172 patients for whom a clinical specimen was available, 78 (45%) were positive for at least one respiratory virus, with 89 viral pathogens identified (single and co-infections): 25 (28%) Influenza, 21 RSV (24%), 21 Rhino/Enterovirus (24%), 16 Coronavirus (CoV, 18%), 3 Human metapneumovirus (hMPV) and 3 Parainfluenza virus (PIV). The main risk factor among our SARI population was a pulmonary disease (COPD, asthma, transplantation, cancer), for 56% of the patients, with a crude all-cause mortality rate of 10%.

During the 2012-2013 SARI-surveillance period, 115 (59%) out of the 195 adult hospitalizations had a documented viral infection, with 72 (37%) influenza and 19 (10%) RSV viruses identified. As in the present series, serious pulmonary disease was the most frequent comorbidity among the SARI population (56%), and the crude all-cause mortality (10%) rate was similar to 2013-2014 season.

Conclusion

Acute respiratory viral infections lead to a significant number of hospitalizations during winter periods. While the prevalence of influenza may fluctuate depending on epidemiologic factors (severe 2012-2013 and moderate 2013-2014 Belgian epidemic seasons), the importance of other respiratory viruses, especially RSV, is confirmed.

Morbidity and mortality related to acute respiratory tract viral infection in adult patients, as well as the impact of rapid laboratory diagnosis on patient management and outcome should be further assessed.